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(FILE 'HOME' ENTERED AT 13:29:46 ON 01 SEP 2006)

FILE 'BIOSIS, CAPLUS, EMBASE, MEDLINE, JAPIO' ENTERED AT 13:30:12 ON 01  
SEP 2006

L1	152 S PASSIVATION AND COVALENT?
L2	47 S L1 AND PD<1998
L3	8 S L2 AND ELECTRODE?
L4	2 S L2 AND PROTEIN?
L5	0 S L3 AND L4

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=>

AN 1990:412571 CAPLUS  
DN 113:12571  
ED Entered STN: 06 Jul 1990  
TI Electrochemical properties of covalently bonded silane  
amphiphile monolayers on a tin dioxide electrode  
AU Okahata, Yoshio; Yokobori, Masatoshi; Ebara, Yasuhito; Ebato, Hiroshi;  
Ariga, Katsuhiko  
CS Dep. Polym. Chem., Tokyo Inst. Technol., Tokyo, 152, Japan  
SO Langmuir (1990), 6(6), 1148-53  
CODEN: LANGD5; ISSN: 0743-7463  
DT Journal  
LA English  
CC 66-4 (Surface Chemistry and Colloids)  
Section cross-reference(s): 72  
AB A monolayer of atriethoxysilane amphiphile having 2 18-carbon alkyl chains  
(2C18Si) was polymerized to form a Si-O-Si linkage on an acidic water  
subphase, transferred onto a SnO<sub>2</sub> electrode by a  
Langmuir-Blodgett (LB) technique, and then covalently  
immobilized with Si-O-Sn linkages on the electrode. The polymerized  
and covalently immobilized 2C18Si monolayer was much more stable  
on the electrode in harsh aqueous conditions than were noncovalently  
bonded monolayers. The 2C18Si monolayer impeded the oxidation of Fe(CN)<sub>6</sub><sup>4-</sup>  
as seen in the ratio of peak currents at the monolayer-covered and  
uncovered electrodes ( $i_p/i_{p0} = 0.2$ ). The reactivity could be  
controlled reversibly by the phase transition from solid to liquid crystalline  
state of the monolayer. The value  $i_p/i_{p0} = 0.2$  indicates that the 2C18Si  
monolayer on the SnO<sub>2</sub> electrode cannot completely block the  
penetration of ferrocyanide ions and still contains pinhole defects in the  
monolayer, probably because the SnO<sub>2</sub> electrode has the  
hydrophilic and rough surface of metal oxides. These defects can be  
eliminated completely by adsorbing a small amount of a long-chain alc.  
(C14OH to C18OH) into the monolayer but not by adsorbing branched bulky  
alcs. or short-chain alcs. (C6OH to C10OH).  
ST adsorbed silane amphiphile tin dioxide electrode; electrochem  
property silane amphiphile monolayer; ferrocyanide oxidn tin dioxide  
electrode; passivation tin dioxide electrode  
surface  
IT Adsorption  
(of fatty alcs., on silane amphiphile monolayers immobilized on tin  
dioxide electrode surface)  
IT Oxidation, electrochemical  
(of ferrocyanide, on tin dioxide electrodes coated with  
silane amphiphile monolayers)  
IT Surface energy  
(of silane amphiphile monolayers, immobilized on tin dioxide  
electrode)  
IT Adsorbed substances  
(silane amphiphile monolayers, immobilization of, on tin dioxide  
electrode surface)  
IT Alcohols, properties  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(fatty, adsorption of, on silane amphiphile monolayers immobilized on  
tin dioxide electrode)  
IT 57-11-4, Stearic acid, uses and miscellaneous  
RL: USES (Uses)  
(adsorbed monolayers on tin dioxide electrode, electrochem.  
properties in relation to)  
IT 6865-35-6, Barium stearate 37519-63-4  
RL: PRP (Properties)  
(adsorbed monolayers on tin dioxide electrode, electrochem.  
properties in relation to)  
IT 105442-22-6 121231-18-3 121231-20-7  
RL: PRP (Properties)

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CODEN: LANGD5; ISSN: 0743-7463  
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(C14OH to C18OH) into the monolayer but not by adsorbing branched bulky  
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ST adsorbed silane amphiphile tin dioxide electrode; electrochem  
property silane amphiphile monolayer; ferrocyanide oxidn tin dioxide  
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surface  
IT Adsorption  
(of fatty alcs., on silane amphiphile monolayers immobilized on tin  
dioxide electrode surface)  
IT Oxidation, electrochemical  
(of ferrocyanide, on tin dioxide electrodes coated with  
silane amphiphile monolayers)  
IT Surface energy  
(of silane amphiphile monolayers, immobilized on tin dioxide  
electrode)  
IT Adsorbed substances  
(silane amphiphile monolayers, immobilization of, on tin dioxide  
electrode surface)  
IT Alcohols, properties  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(fatty, adsorption of, on silane amphiphile monolayers immobilized on  
tin dioxide electrode)  
IT 57-11-4, Stearic acid, uses and miscellaneous  
RL: USES (Uses)  
(adsorbed monolayers on tin dioxide electrode, electrochem.  
properties in relation to)  
IT 6865-35-6, Barium stearate 37519-63-4  
RL: PRP (Properties)  
(adsorbed monolayers on tin dioxide electrode, electrochem.  
properties in relation to)  
IT 105442-22-6 121231-18-3 121231-20-7  
RL: PRP (Properties)

(adsorbed monolayers, immobilization of, on tin dioxide electrode)

- IT 111-27-3, Hexyl alcohol, properties 111-87-5, Octyl alcohol, properties  
112-30-1, Decyl alcohol 112-53-8, Dodecyl alcohol 112-72-1, Tetradecyl  
alcohol 112-92-5, Octadecyl alcohol 36653-82-4, Hexadecyl alcohol  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(adsorption of, on silane amphiphile monolayers immobilized on tin  
dioxide electrode)
- IT 18282-10-5, Tin oxide (SnO<sub>2</sub>)  
RL: PRP (Properties)  
(electrochem. properties of adsorbed monolayers on electrode  
containing)
- IT 121231-18-3D, reaction products with tin dioxide  
RL: PRP (Properties)  
(surface, electrode properties in relation to)

(adsorbed monolayers, immobilization of, on tin dioxide electrode)

- IT 111-27-3, Hexyl alcohol, properties 111-87-5, Octyl alcohol, properties  
112-30-1, Decyl alcohol 112-53-8, Dodecyl alcohol 112-72-1, Tetradecyl  
alcohol 112-92-5, Octadecyl alcohol 36653-82-4, Hexadecyl alcohol  
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(adsorption of, on silane amphiphile monolayers immobilized on tin  
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- IT 18282-10-5, Tin oxide (SnO<sub>2</sub>)  
RL: PRP (Properties)  
(electrochem. properties of adsorbed monolayers on electrode  
containing)
- IT 121231-18-3D, reaction products with tin dioxide  
RL: PRP (Properties)  
(surface, electrode properties in relation to)

AN 1990:225460 CAPLUS  
DN 112:225460  
ED Entered STN: 09 Jun 1990  
TI Effect of nonmetals on the electrochemical behavior of metallic glasses  
AU Vasil'ev, V. Yu.; Shul'gin, M. A.; Bayankin, V. Ya.; Gerasimov, M. V.;  
Simirskii, Yu. N.  
CS Mosk. Inst. Stali Splavov, Moscow, USSR  
SO Zashchita Metallov (1990), 26(2), 252-8  
CODEN: ZAMEA9; ISSN: 0044-1856  
DT Journal  
LA Russian  
CC 72-6 (Electrochemistry)  
Section cross-reference(s): 57  
AB The electrochem. behavior was studied of a number of amorphous alloys of the systems Fe-P, Fe-P-C, Fe-B, Fe-Cr-P-C, as well as the crystalline phosphides of Fe and Cr. The methods of cyclic voltammetry and coulogravimetry were used; and Auger electron spectroscopy was used to study the composition of the alloys before and after anodic polarization. The specifics of the electrochem. behavior of amorphous alloys containing P are caused both by the characteristics of surface passivation of the amorphous alloys enriched with covalent bonds, and also by the occurrence in them of a broad spectrum of electrochem. reactions with the participation of metalloids. The study of the selective dissoln. in H<sub>2</sub>SO<sub>4</sub> and HCl of Cr, P, and Fe in active, active-passive, and passive potential regions was made on the alloys Fe<sub>75</sub>Cr<sub>5</sub>P<sub>13</sub>C<sub>7</sub>, Fe<sub>75</sub>Cr<sub>5</sub>C<sub>10</sub>P<sub>10</sub>, and the model alloys Fe<sub>80</sub>B<sub>20</sub>, Fe<sub>82</sub>P<sub>18</sub>, Fe<sub>80</sub>P<sub>13</sub>C<sub>7</sub> in the initial states and after preliminary annealings. The H<sub>2</sub>SO<sub>4</sub> solns. were sometimes saturated with Na<sub>3</sub>PO<sub>4</sub> and the HCl solns. with K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>. Apparently, the P and C have a fundamental effect on the passivation characteristics of the amorphous alloys, participating in a series of oxidation-reduction reactions in the near-electrode layer, and the effect on passivation of surface layers enriched with phosphide or carbophosphide clusters. The presence of Cr in the alloys or directly in the near-electrode layer improves the effectiveness of these processes.  
ST nonmetal effect metallic glass electrochem behavior; iron chromium phosphorous boron amorphous alloy; electrolytic polarization amorphous alloy acid  
IT Electrolytic polarization  
Oxidation, electrochemical  
(of amorphous iron-based alloys in hydrochloric and sulfuric acid solns.)  
IT Metallic glasses  
RL: PRP (Properties)  
(iron alloy, corrosion-electrochem. behavior of amorphous, in sulfuric and hydrochloric acid solns.)  
IT 7778-50-9, Dipotassium dichromate  
RL: PRP (Properties)  
(corrosion-electrochem. behavior of amorphous iron-based alloys in hydrochloric acid solns. containing)  
IT 7601-54-9, Trisodium phosphate  
RL: PRP (Properties)  
(corrosion-electrochem. behavior of amorphous iron-based alloys in sulfuric acid solns. containing)  
IT 42611-85-8 54658-58-1 60569-79-1, Fe<sub>80</sub>B<sub>20</sub> 68328-58-5 127151-33-1  
RL: PRP (Properties)  
(corrosion-electrochem. behavior of amorphous, in sulfuric and hydrochloric acid solns.)  
IT 7440-42-8, Boron, uses and miscellaneous 7440-44-0, Carbon, uses and miscellaneous 7723-14-0, Phosphorus, uses and miscellaneous  
RL: USES (Uses)  
(corrosion-electrochem. behavior of iron-based amorphous alloys containing, in hydrochloric and sulfuric acids)  
IT 7439-89-6, Iron, reactions 7440-47-3, Chromium, reactions

AN 1990:225460 CAPLUS  
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TI Effect of nonmetals on the electrochemical behavior of metallic glasses  
AU Vasil'ev, V. Yu.; Shul'gin, M. A.; Bayankin, V. Ya.; Gerasimov, M. V.;  
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CODEN: ZAMEA9; ISSN: 0044-1856  
DT Journal  
LA Russian  
CC 72-6 (Electrochemistry)  
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ST nonmetal effect metallic glass electrochem behavior; iron chromium phosphorous boron amorphous alloy; electrolytic polarization amorphous alloy acid  
IT Electrolytic polarization  
Oxidation, electrochemical  
(of amorphous iron-based alloys in hydrochloric and sulfuric acid solns.)  
IT Metallic glasses  
RL: PRP (Properties)  
(iron alloy, corrosion-electrochem. behavior of amorphous, in sulfuric and hydrochloric acid solns.)  
IT 7778-50-9, Dipotassium dichromate  
RL: PRP (Properties)  
(corrosion-electrochem. behavior of amorphous iron-based alloys in hydrochloric acid solns. containing)  
IT 7601-54-9, Trisodium phosphate  
RL: PRP (Properties)  
(corrosion-electrochem. behavior of amorphous iron-based alloys in sulfuric acid solns. containing)  
IT 42611-85-8 54658-58-1 60569-79-1, Fe<sub>80</sub>B<sub>20</sub> 68328-58-5 127151-33-1  
RL: PRP (Properties)  
(corrosion-electrochem. behavior of amorphous, in sulfuric and hydrochloric acid solns.)  
IT 7440-42-8, Boron, uses and miscellaneous 7440-44-0, Carbon, uses and miscellaneous 7723-14-0, Phosphorus, uses and miscellaneous  
RL: USES (Uses)  
(corrosion-electrochem. behavior of iron-based amorphous alloys containing, in hydrochloric and sulfuric acids)  
IT 7439-89-6, Iron, reactions 7440-47-3, Chromium, reactions



RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(selective dissoln. of, from amorphous alloys containing nonmetals in acid  
solns.)

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(selective dissoln. of, from amorphous alloys containing nonmetals in acid  
solns.)

AN 1986:118491 CAPLUS  
DN 104:118491  
ED Entered STN: 05 Apr 1986  
TI Effect of chloride additions to a lithium fluoride-sodium fluoride-potassium fluoride eutectic melt on the anodic process at glassy carbon  
AU Nekrasov, V. N.; Cherepanov, V. B.; Ivanovskii, L. E.  
CS Inst. Elektrokhim., Sverdlovsk, USSR  
SO Elektrokhimiya (1986), 22(2), 267-70  
CODEN: ELKKAX; ISSN: 0424-8570  
DT Journal  
LA Russian  
CC 72-5 (Electrochemistry)  
AB Using as an example the system of a eutectic melt of LiF-NaF-KF (46.5-11.5-42.0 mol %)-glassy C electrode, the influence was studied, on the anodic process, of small (up to several mol %) addns. of chloride salts introduced as KCl or PbCl<sub>2</sub>. Potentiostatic current-voltage curves of anodic polarization of glassy C at 973 K in melts containing the KCl additive were plotted. The introduction of Cl and freons in appreciable quantities, owing to kinetic difficulties, caused by passivation of the electrode surface, occurs with a significant overvoltage ( $\eta$ ) which is higher, the greater the fraction of F in the gas. The passivation was of 2 types: relatively weak passivation apparently of chemisorption type at  $\eta < 2$  V and stronger passivation at higher polarization with the formation of compds. with covalent bonding which are practically nonconducting with respect to elec. current.  
ST fluoride eutectic melt glassy carbon; carbon anodic process fluoride melt; chloride addn fluoride melt carbon; anodic polarization carbon fluoride melt  
IT Electrolytic polarization  
(anodic, of glassy carbon, in alkali metal fluoride eutectic melt with chloride addns.)  
IT 7447-40-7, uses and miscellaneous  
RL: USES (Uses)  
(anodic process at glassy carbon in fluoride eutectic melt containing)  
IT 7758-95-4  
RL: PRP (Properties)  
(anodic process at glassy carbon in fluoride eutectic melt containing)  
IT 7681-49-4D, eutectic with lithium fluoride and potassium fluoride  
7789-23-3D, eutectic with lithium fluoride and sodium fluoride  
7789-24-4D, eutectic with potassium fluoride and sodium fluoride  
RL: PRP (Properties)  
(anodic process at glassy carbon in melt containing, chlorides effect on)  
IT 7440-44-0, uses and miscellaneous  
RL: USES (Uses)  
(electrodes from glassy, anodic process at, in fluoride eutectic melt, chloride effect on)  
IT 75-71-8P 75-72-9P 75-73-0P 7782-50-5P, preparation  
RL: PREP (Preparation)  
(evolution of, on glassy carbon in alkali metal fluoride eutectic melt containing chloride addns.)

AN 1986:118491 CAPLUS  
DN 104:118491  
ED Entered STN: 05 Apr 1986  
TI Effect of chloride additions to a lithium fluoride-sodium  
fluoride-potassium fluoride eutectic melt on the anodic process at glassy  
carbon  
AU Nekrasov, V. N.; Cherepanov, V. B.; Ivanovskii, L. E.  
CS Inst. Elektrokhim., Sverdlovsk, USSR  
SO Elektrokhimiya (1986), 22(2), 267-70  
CODEN: ELKKAX; ISSN: 0424-8570  
DT Journal  
LA Russian  
CC 72-5 (Electrochemistry)  
AB Using as an example the system of a eutectic melt of LiF-NaF-KF  
(46.5-11.5-42.0 mol %)-glassy C electrode, the influence was  
studied, on the anodic process, of small (up to several mol %) addns. of  
chloride salts introduced as KCl or PbCl<sub>2</sub>. Potentiostatic current-voltage  
curves of anodic polarization of glassy C at 973 K in melts containing the KCl  
additive were plotted. The introduction of Cl and freons in appreciable  
quantities, owing to kinetic difficulties, caused by passivation  
of the electrode surface, occurs with a significant overvoltage  
( $\eta$ ) which is higher, the greater the fraction of F in the gas. The  
passivation was of 2 types: relatively weak passivation  
apparently of chemisorption type at  $\eta < 2$  V and stronger  
passivation at higher polarization with the formation of compds.  
with covalent bonding which are practically nonconducting with  
respect to elec. current.  
ST fluoride eutectic melt glassy carbon; carbon anodic process fluoride melt;  
chloride addn fluoride melt carbon; anodic polarization carbon fluoride  
melt  
IT Electrolytic polarization  
(anodic, of glassy carbon, in alkali metal fluoride eutectic melt with  
chloride addns.)  
IT 7447-40-7, uses and miscellaneous  
RL: USES (Uses)  
(anodic process at glassy carbon in fluoride eutectic melt containing)  
IT 7758-95-4  
RL: PRP (Properties)  
(anodic process at glassy carbon in fluoride eutectic melt containing)  
IT 7681-49-4D, eutectic with lithium fluoride and potassium fluoride  
7789-23-3D, eutectic with lithium fluoride and sodium fluoride  
7789-24-4D, eutectic with potassium fluoride and sodium fluoride  
RL: PRP (Properties)  
(anodic process at glassy carbon in melt containing, chlorides effect on)  
IT 7440-44-0, uses and miscellaneous  
RL: USES (Uses)  
(electrodes from glassy, anodic process at, in fluoride  
eutectic melt, chloride effect on)  
IT 75-71-8P 75-72-9P 75-73-0P 7782-50-5P, preparation  
RL: PREP (Preparation)  
(evolution of, on glassy carbon in alkali metal fluoride eutectic melt  
containing chloride addns.)

AN 1991:112705 CAPLUS  
 DN 114:112705  
 ED Entered STN: 23 Mar 1991  
 TI On the possibility of passivation of silicon(100) by adsorption  
 of Group VI atoms  
 AU Kaxiras, Efthimios  
 CS Complex Syst. Theory Branch, Nav. Res. Lab., Washington, DC, 20375, USA  
 SO Materials Research Society Symposium Proceedings (1990), 193 (At.  
 Scale Calc. Struct. Mater.), 143-8  
 CODEN: MRSPDH; ISSN: 0272-9172  
 DT Journal  
 LA English  
 CC 76-3 (Electric Phenomena)  
 Section cross-reference(s): 66  
 AB The possibility of passivating the Si(100) surface by adsorption  
 of Group VI atoms (S and Se) was investigated through 1st-principles  
 calcns. The structure of the ideal (1 + 1) configuration with the  
 Si surface dangling bonds saturated by full monolayer coverage was examined  
 The  
 Group VI adsorbates form covalent bonds to the  
 substrate with bond lengths very close to the sums of the covalent  
 radii. The bond angles are larger than in bulk configurations of the  
 Group VI elements. The ideal (1 + 1) configuration gives rise to a  
 surface electronic state with large dispersion spanning the entire  
 band-gap of Si.  
 ST passivation silicon Group VIA adsorption; energy level surface  
 silicon VIA adsorption  
 IT Surface structure  
 (of passivated of silicon with chemisorbed chalcogenide  
 atoms)  
 IT Energy level, surface  
 (of silicon with chemisorbed selenium and sulfur)  
 IT Chemisorbed substances  
 (selenium and sulfur, on silicon, bonding of)  
 IT 7704-34-9, Sulfur, uses and miscellaneous 7782-49-2, Selenium, reactions  
 RL: USES (Uses)  
 (passivation of silicon by chemisorption of)  
 IT 7440-21-3, Silicon, uses and miscellaneous  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (passivation of, by chemisorption of chalcogens)

ANSWER 4 OF 8 CAPLUS COPYRIGHT 2006 ACS on STN

AN 1991:615720 CAPLUS  
 DN 115:215720  
 ED Entered STN: 15 Nov 1991  
 TI Passivation of gallium arsenide(001) surfaces by chalcogen atoms  
 (sulfur, selenium, tellurium)  
 AU Ohno, Takahisa  
 CS LSI Lab., NTT, Atsugi, 243-01, Japan  
 SO Surface Science (1991), 255(3), 229-36  
 CODEN: SUSCAS; ISSN: 0039-6028  
 DT Journal  
 LA English  
 CC 66-3 (Surface Chemistry and Colloids)  
 Section cross-reference(s): 65, 67, 76  
 AB To elucidate the passivating effects of the chalcogenide solution  
 treatment on GaAs surfaces, first-principles pseudopotential calcns. were  
 performed for the GaAs(001) surfaces adsorbed with a monolayer  
 of chalcogen atoms. The chalcogen atoms adsorb in the bridge  
 site on both the Ga-terminated and the As-terminated GaAs surfaces and  
 form covalent bonds with Ga or As atoms. The chalcogen-Ga bond  
 is stronger than the chalcogen-As bond. The chalcogen-Ga bond reduces the  
 surface state d. in the GaAs mid-gap region, while the chalcogen-As bond  
 does not. It is suggested that the chalcogen-Ga bonds are dominant on the  
 chalcogen-treated GaAs surface and are responsible for the  
 passivation of the surface. It is inferred that Se atoms can  
 passivate GaAs(001) surfaces as effectively as S atoms, but that  
 the passivating effect on Te atoms is weak in comparison with S  
 and Se atoms.  
 ST passivation surface gallium arsenide chalcogen atom  
 IT Adsorbed substances  
 (chalcogen atoms, on gallium arsenide, surface passivation  
 by)  
 IT Energy level, surface  
 (on gallium arsenide, passivated by chalcogen atoms)  
 IT Group VIA elements  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (surface passivation by, of gallium arsenide)  
 IT 7704-34-9, Sulfur, reactions 7782-49-2, Selenium, reactions  
 13494-80-9, Tellurium, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (surface passivation by, of gallium arsenide)  
 IT 1303-00-0, Gallium arsenide, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (surface passivation of, by chalcogen atoms)